# UNITED STATES DISTRICT COURT SOUTHERN DISTRICT OF NEW YORK

FCX SOLAR, LLC,		
	Plaintiff,	Case No. 1:21-CV-03556-RA
V.		Case No. 1.21-C v -03330-KA
FTC SOLAR, INC.,		
	Defendant.	
FCX SOLAR, LLC,		
	Plaintiff,	
v.		Case No. 1:21-CV-08766-RA
FTC SOLAR, INC.,		
	Defendant.	

PLAINTIFF'S OPENING CLAIM CONSTRUCTION BRIEF

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Plaintiff FTC Solar, LLC, by and through counsel, under the Scheduling Order (Doc. 34), respectfully submits this Opening Claim Construction Brief.

#### I. INTRODUCTION

This is a case for patent infringement involving a patent with easily understood terms. Defendant urges otherwise, taking the position that all disputed claim terms except for one are indefinite. For the one term for which Defendant proposes a construction, Defendant asserts that it should be construed according to "means-plus-function" analysis or proposes an alternative construction that is improperly narrow. But the Court should not accept Defendant's attempt to confuse the Court and invalidate the patent for indefiniteness. Defendant suggests uncertainty in claim scope where there is none. The disputed claim terms are easily understood and mean just what they say. And Defendant's proposed constructions violate fundamental tenets of claim construction by ignoring the disclosure of the specification and improperly importing limitations from exemplary embodiments into the claims. For the reasons stated below, the Court should adopt Plaintiff's proposed claim constructions—or, more specifically, should reject Defendant's attempts to contort the claim language.

This is also a case in which Defendant has advanced positions that are contrary to legal presumptions to which Plaintiff is entitled as the patent owner, and for which Defendant bears evidentiary and persuasive burdens. Those presumptions include the presumption that claim terms should be construed according to their plain and ordinary meanings, the presumption that claims are valid and therefore that claim terms are not indefinite, and the presumption that a claim term is not a means-plus-function claim term if it does not use the word "means." Under the scheduling order, Plaintiff is tasked with briefing claim construction first. But it is impossible for Plaintiff to know just what Defendant will argue for those terms, and it is not Plaintiff's burden to disprove

those constructions. Accordingly, Plaintiff will present in its reply brief arguments and evidence to address any arguments Defendant might make on any issue for which it bears an evidentiary or persuasive burden.

#### II. TECHNOLOGY BACKGROUND

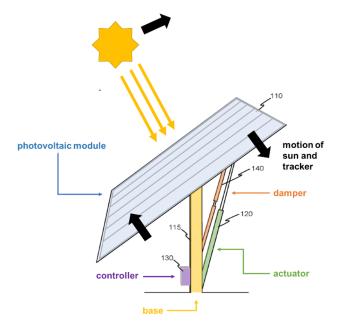
This is a case about "solar tracker" systems for photovoltaic panels ("solar panels"), which generate electrical energy when exposed to light. *See* U.S. Patent No. 10,903,782 ("the '782 patent") (Ex. 1);<sup>1</sup> Declaration of Douglas W. Hall, PhD ¶ 28 ("Hall Decl."). The angle at which sunlight hits a solar panel affects how much electrical energy it produces. *See* Hall Decl. ¶ 29 (citing '782 patent at 2:11–16).<sup>2</sup> At any given time, solar panels can be positioned to absorb as much of the sun's energy as possible. *Id.* The trouble is that the sun moves, and orienting solar panels in a suboptimal manner relative to the sun significantly diminishes energy generation. *Id.* One solution is the use of "solar trackers"—that is, systems that rotate the solar panels about an axis to change their orientation during the day to match the sun's position and best capture the incoming light. *Id.* (citing '782 patent at 1:19–29).

Such systems can use a controller to adjust an actuator coupled between solar panels and a fixed base. Id. ¶ 30 (citing '782 patent at 1:66–2:35). For example, the controller can be programmed to adjust the actuator according to a solar positioning algorithm. Id. As another example, the controller can sense whether optimal sunlight is being captured and use the actuator to rotate the solar panels about an axis in response. Id. (citing '782 patent at 2:36–55). By tracking the sun's position, such systems "often produce 20-30% more energy than fixed-tilt systems." Id.

<sup>&</sup>lt;sup>1</sup> All cited exhibits are attached to the Declaration of Gene Lee, filed herewith.

<sup>&</sup>lt;sup>2</sup> Citations in this format refer to columns and lines of the '782 patent. Thus, "2:11–16" refers to column 2, lines 11–16.

(citing '782 patent at 1:27–28). The figure below illustrates the solar-tracker concept. See id. ¶ 31.



But allowing solar panels to rotate on command presents challenges. *Id.* ¶ 32. One is wind. *Id.* Solar panels that do not move can be reinforced structurally to resist significant wind. *Id.* But solar *tracker* systems are not stationary and must be free to move. *Id.* Wind can inflict havoc on the solar panels of such trackers. *Id.* It can twist them away from their intended tilt angle, cause them to oscillate in an undesirable manner, or otherwise move the system in unwanted ways. *Id.* One solution to that problem is to use "dampers" to resist movement of the solar panels relative to the base. *Id.* 

Dampers are well-known components in mechanical systems that resist movement; the force of the resistance depends on the velocity of the movement. Id. ¶ 33. Two common examples of dampers are shock absorbers in cars and the dampers that control the closing of storm doors of homes. Id. As discussed below, the extent to which a damper installed in a mechanical system resists movement of the system can be characterized by the "damping ratio." Id. A high damping ratio indicates greater resistance to movement than a low damping ratio. Id.

Often, there is not a single ideal damping ratio for a mechanical system. Id. ¶ 34. For

example, a solar tracker might have a damper too strong for efficient movement of the solar panels under ordinary operation, or it might have one too weak to prevent undesirable movement caused by the wind. *Id.* A critical insight of the inventors of the '782 patent (Christopher Needham and Frank Oudheusden) was the benefit of using a damper in a solar tracker that provides variable damping ratios for different conditions: for instance, a lower damping ratio (less resistance to movement) when the actuator moves the solar panels, and a higher damping ratio when the tracker is exposed to significant or high wind. *See id.* The use of different "damping ratios" means that the system does not waste energy or overload the actuator when the actuator moves the panels to track the sun, and that the system can manage the movement of the solar panels when they are subjected to significant wind. *Id.* The inventors further contemplated that these benefits could be achieved by using a damper that varies the damping ratio passively (not through inefficient, expensive, or complicated active control), which results in an effective, low-cost, and reliable system. *Id.* 

#### III. THE '782 PATENT

The '782 patent, titled, "Solar Tracker System," issued on January 26, 2021, and is assigned to Plaintiff. It issued from application No. 16/443,535, which was filed as a continuation of application No. 16/274,557, and claims priority from provisional application No. 62/629,931. '782 patent at (21), (63), (60). The '782 patent has a priority date of February 13, 2018.

FCX asserts that defendant FTC infringes claims 1–7, 9–14, and 16–19 of the '782 patent. Claims 1, 11, and 19 are independent claims. The other asserted claims depend from the independent claims. For purposes of claim construction, the disputed claim terms appear in claims 1, 10, 11, and 17–19, which are reproduced in Appendix 1, filed herewith.

The independent claims of the '782 patent are directed to photovoltaic systems. Each such system includes (1) one or more "photovoltaic modules," (2) a "base" that supports the modules,

(3) and a "damper" that is coupled between the based and the modules. '782 patent, claims 1, 11, 19. The system can also include an "actuator" to move the modules relative to the base. *See id.* claim 11. The claimed "damper" itself includes some specific parts: a fluid-containing "damper chamber" and a "damper piston" that moves through that fluid—the piston itself including two "ports," one of which is passively opened or closed by a "valve." *See id.* claims 1, 11, 19.

The '782 patent explains that the "damper resists movement of the photovoltaic modules relative to the base." *Id.* at Abstract; 2:56–67. Specifically, "[d]amping by the damper ... can mitigate dynamic wind loading or other vibration loads applied to the [photovoltaic] system[.]" *Id.* at 2:58–60. That is, "[w]ind loading can induce motion in [a photovoltaic system], for example rotating the collection of [photovoltaic] modules ... around the base at a velocity multiple orders of magnitude higher than the motion induced by the actuator" (i.e., the motion needed to subtly adjust the solar panel's position relative to the sun). *Id.* at 2:60–63.

#### IV. LEGAL STANDARDS

#### A. Person of Ordinary Skill in the Art

Claim terms are construed according to their meaning to a person of ordinary skill in the art at the time of the invention. *Phillips v. AWH Corp.*, 415 F.3d 1303, 1316 (Fed. Cir. 2005) (en banc). A person of ordinary skill in the art in the field of the '782 patent would have had an undergraduate degree in mechanical engineering, physics, or a similar discipline (such as applied aerodynamics, aerospace engineering, fluid dynamics, photovoltaic systems engineering) and at least three to five years of work experience designing, analyzing, or evaluating solar trackers, or the equivalent experience. Hall Decl. ¶¶ 23–27.

Further, a person of ordinary skill in the field of solar trackers would know to enlist the expertise of a damper expert in designing the dampers to provide desired characteristics to trackers.

A systems-level tracker expert would have knowledge of how to evaluate or specify the

performance of dampers in the system, for instance, but would turn to a damper expert to design the dampers themselves, or to understand how they work. *Id.* at  $\P$  27.

#### **B.** Claim Construction

"[T]he claims of a patent define the invention to which the patentee is entitled the right to exclude." *Phillips.*, 415 F.3d at 1312 (internal quotation marks and citations omitted). The proper construction of a patent claim is a question of law, but subsidiary factfinding is sometimes necessary. *Teva Pharms. USA, Inc. v. Sandoz, Inc.*, 574 U.S. 318, 325–27 (2015). The methodology for construing claim terms is governed by the Federal Circuit's en banc *Phillips* framework. "[T]he words of a claim are generally given their ordinary and customary meaning," that is, the meaning "to a person of ordinary skill in the art in question at the time of the invention, i.e., as of the effective filing date of the patent application." *Phillips*, 415 F.3d at 1312–13 (internal quotation marks and citations omitted). "Properly viewed, the 'ordinary meaning' of a claim term is its meaning to the ordinary artisan after reading the entire patent," *id.* at 1321—that is, the specification, including the claims and written description, *id.* at 1314–17. The specification "is always highly relevant to the claim construction analysis," and "[u]sually, it is dispositive; it is the single best guide to the meaning of a disputed term." *Id.* at 1315 (internal quotation marks and citation omitted).

Although the specification is used to interpret the meaning of a claim, it is improper to import into the claims limitations from embodiments described in the specification. *Id.* at 1323. And while claim terms are generally construed according to their ordinary meaning, there are exceptions, namely "lexicography" or "disavowal," *id.* at 1316, but the standards for finding either are "exacting," *GE Lighting Sols.*, *LLC v. AgiLight, Inc.*, 750 F.3d 1304, 1309 (Fed. Cir. 2014).

A court "should also consider the patent's prosecution history, if it is in evidence." *Phillips*,

415 F.3d at 1317 (citation omitted). "Yet because the prosecution history represents an ongoing negotiation between the [Patent Office] and the applicant, ... it often lacks the clarity of the specification and thus is less useful for claim construction purposes." *Id.*; *see*, *e.g.*, *Athletic Alts.*, *Inc.* v. *Prince Mfg.*, *Inc.*, 73 F.3d 1573, 1580 (Fed. Cir. 1996) (finding that ambiguity of the prosecution history made it "unhelpful as an interpretive resource").

In addition to the specification and file history, which are "intrinsic" to the patent, the Court may also consult "extrinsic evidence concerning relevant scientific principles, the meaning of technical terms, and the state of the art." *Phillips*, 415 F.3d at 1314. Examples of extrinsic evidence include "expert and inventor testimony, dictionaries, and learned treatises." *Id.* at 1317. But "while extrinsic evidence can shed useful light on the relevant art, ... it is less significant than the intrinsic record in determining the legally operative meaning of claim language." *Id.* (internal quotation marks and citations omitted). Still, "expert testimony can be useful to a court for a variety of purposes, such as to provide background on the technology at issue, to explain how an invention works, to ensure that the court's understanding of the technical aspects of the patent is consistent with that of a person of skill in the art, or to establish that a particular term in the patent or the prior art has a particular meaning in the pertinent field." *Id.* at 1318.

Finally, "[w]hen the parties raise an actual dispute regarding the proper scope of the[] claims, the court, not the jury, must resolve that dispute." *O2 Micro Int'l Ltd. v. Beyond Innovation Tech. Co.*, 521 F.3d 1351, 1360 (Fed. Cir. 2008). But it is proper to reject a proposed construction and conclude instead that a term needs no construction if rejection of that construction "resolve[s] the dispute between the parties" about the claim's meaning. *ActiveVideo Networks, Inc. v. Verizon Comme'ns, Inc.*, 694 F.3d 1312, 1325 (Fed. Cir. 2012).

#### C. Presumptions Favoring Patent Owner

Defendant's proposed claim constructions share a common thread: Defendant must overcome legal presumptions to prevail.

#### 1. Presumption of Plain Meaning

The first such presumption is the "heavy presumption that claim terms are to be given their ordinary and customary meaning." *MIT v. Shire Pharms., Inc.*, 839 F.3d 1111, 1118 (Fed. Cir. 2016) (citation omitted). Departure is warranted in just two circumstances, "lexicography" or "disavowal." *GE Lighting*, 750 F.3d at 1308–09. To act as its "own lexicographer," a patentee must "clearly set forth a definition of the disputed claim term" and "clearly express an intent to define the term." *Id.* (quoting *Thorner v. Sony Comp. Ent. Am. LLC*, 669 F.3d 1362, 1365 (Fed. Cir. 2012)). Likewise, "disavowal requires that the specification [or prosecution history] make[] clear that the invention does not include a particular feature." *Id.* (citation and internal quotation marks omitted) (alteration in original). The Federal Circuit has cautioned that it "does not rely on the prosecution history to construe the meaning of the claim to be narrower than it would otherwise be unless a patentee limited or surrendered claim scope through a clear and unmistakable disavowal." *3M Innovative Props. Co. v. Tredegar Corp.*, 725 F.3d 1315, 1322 (Fed. Cir. 2013).

#### 2. Presumption Against Indefiniteness

The second presumption is the presumption of validity. 35 U.S.C. § 282. Defendant argues that various claim terms are fatally indefinite so as to invalidate the claims in which they appear. But "[p]atents are presumed valid, and the challenger bears the burden of establishing invalidity." *MIT*, 839 F.3d at 1124 (citing 35 U.S.C. § 282; *Nautilus, Inc. v. Biosig Instruments, Inc.*, 572 U.S. 898, 912 n.10 (2014)); *Bosch Auto. Serv. Sols., LLC v. Matal*, 878 F.3d 1027, 1040 (Fed. Cir. 2017). Accordingly, to demonstrate that a claim term is indefinite, a defendant must meet a high burden—clear and convincing evidence. *Nautilus*, 572 U.S. at 912 n.10. A claim is invalid for

indefiniteness only if "its language, when read in light of the specification and the prosecution history, 'fail[s] to inform, with reasonable certainty, those skilled in the art about the scope of the invention." *MIT*, 839 F.3d at 1124 (alteration in original) (quoting *Nautilus*, 572 U.S. at 901). And the "definiteness requirement must take into account the inherent limitations of language." *Nautilus*, 572 U.S. at 901.

Although Defendant has indicated that it intends to argue for the indefiniteness of numerous claim terms, it has not yet explained its indefiniteness arguments or provided any evidence meeting the burden it bears. Plaintiff cannot at this point respond to hypothetical arguments that Defendant might make. Accordingly, Plaintiff reserves the right to respond to whatever arguments Defendant makes in its responsive claim construction brief and to introduce corresponding evidence with the reply brief.

#### 3. Presumption Against Means-Plus-Function Construction

The third presumption that Defendant faces is the presumption against interpreting a claim term as a "means-plus-function" term if it does not use the word "means." Defendant urges that the term, "a valve, configured to passively open or close the second port" is a means-plus-function term, despite the fact that it does not use the word "means."

"Means-plus-function" claiming is an optional form of claim drafting:

An element in a claim for a combination may be expressed as a *means* or step *for performing a specified function without the recital of structure*, material, or acts in support thereof, and such claim shall be construed to cover the corresponding structure, material, or acts described in the specification and equivalents thereof.

35 U.S.C. § 112(f) (emphasis added). Unlike in a standard claim, the means-plus-function claim form restricts the scope of a claim to a specific corresponding structure and its equivalents. Invocation of the means-plus-function form is a matter of the "drafter's choice." *See Samsung Elecs. Am., Inc. v. Prisua Eng'g Corp.*, 948 F.3d 1342, 1354 (Fed. Cir. 2020). So, if a patent term

does not use the word "means," it is presumed that the drafter did not intend to invoke this interpretive framework. *Id.* at 1353. That presumption can be overcome only "if the challenger demonstrates that the claim term fails to 'recite sufficiently definite structure' or else recites 'function without reciting sufficient structure for performing that function." *Id.* at 1353–54 (quoting *Williamson v. Citrix Online*, 792 F.3d 1339, 1349 (Fed. Cir. 2015) (en banc)).

The question is "whether persons skilled in the art would understand the claim language to refer to structure, assessed in light of the presumption," or instead to be "purely functional." *Id.* at 1354. The latter case occurs only if the patent uses a "nonce word" (i.e., coined term) or structureless generic term that can "operate as substitutes for 'means." *See Zeroclick, LLC v. Apple Inc.*, 891 F.3d 1003, 1007–08 (Fed. Cir. 2018). Importantly, "the mere fact that the disputed limitations incorporate functional language does not automatically convert the words into means for performing such functions." *Id.* at 1008.

Defendant bears the burden to rebut the presumption against finding "valve" to be a meansplus-function term. *See Apple Inc. v. Motorola, Inc.*, 757 F.3d 1286, 1298 (Fed. Cir. 2014), overruled in part on other grounds, Williamson, 792 F.3d at 1348–49; Apex Inc. v. Raritan Comput., Inc., 325 F.3d 1364, 1372 (Fed. Cir. 2003). This burden must be met by a preponderance of the evidence. Apex, 325 F.3d at 1372.

#### V. CLAIM CONSTRUCTIONS FOR DISPUTED TERMS OF THE '782 PATENT

Plaintiff accuses Defendant of infringing claims 1–7, 9–14, and 16–19 of the patent. The meanings of eight terms within these claims were initially disputed. The parties have reached agreement on one ("damping ratio"), leaving seven for dispute.

#### A. "damping ratio" (claims 1, 5, 7, 9, 10, 11, 12, 14, 16, 17, 19)

#### **Agreed Construction**

"a ratio determined by dividing the actual damping coefficient of a system by the critical damping coefficient of the system"

The parties now agree on the construction of "damping ratio," which is its plain meaning.

### B. "the damper having a first damping ratio" (claims 1, 11, 19) and "the damper having ... a second damping ratio" (claims 1, 19)

Plaintiff's Construction	Defendant's Construction
These terms are not indefinite and should be accorded their plain and ordinary meaning.	Indefinite.

These terms appear in three independent claims of the patent and concern the claimed system's "variable damping ratio," *see* '782 patent at 3:1, which lets the claimed system move its solar panels when necessary while also resisting disturbances like wind gusts.<sup>3</sup> For instance, claim 1 recites "the damper having a first damping ratio when the collection of photovoltaic modules moves at a first rate relative to the base" (i.e., under a first condition), and a "second damping ratio when the collection of photovoltaic modules moves at a second rate relative to the base" (i.e., under a second condition). Defendant has the burden of proving indefiniteness by clear and convincing evidence. Plaintiff will respond in due course when Defendant makes its arguments. In the meantime, the claim language and the intrinsic evidence demonstrate that "damper having a first damping ratio" is not indefinite and has its plain and ordinary meaning in the context of a damped system.

<sup>&</sup>lt;sup>3</sup> Claim 11 too has the damper providing a "second damping ratio," but Defendant did not challenge this term in connection with claim 11.

As an initial matter, definiteness is clear from the words of the claims themselves. The word "damper" needs no construction. Dampers are fundamental and well-understood components in mechanical systems that resist movement, and the force of the resistance depends on the velocity of the movement. Shock absorbers in cars and dampers that control the closing of storm doors of homes are common examples of dampers. A high damping ratio indicates greater resistance to movement than a low damping ratio. In the claims of the '782 patent, the recited damper is part of a photovoltaic system that is coupled between or to photovoltaic modules and a base.

As explained above, the parties agree on the construction of "damping ratio." The word "having" (as in "the damper having" a damping ratio) is used according to its plain and ordinary meaning, which depends on context. That context is clear here, and "having" reads as "used in common parlance" with "no special meaning in the art." *See Summit 6, LLC v. Samsung Elecs. Co.*, 802 F.3d 1283, 1291 (Fed. Cir. 2015) (affirming district court's declining to construe meaning of parameters "being provided to" a device). Accordingly, the plain and ordinary meaning of the damper "having" a first or second damping ratio refers to the damper providing the photovoltaic system with two different damping ratios depending on the conditions. *See also* Hall Decl. ¶¶ 43–48; Declaration of Mehdi Ahmadian, PhD ¶¶ 36–43 ("Ahmadian Decl."). The inquiry could end there.

The intrinsic evidence confirms this plain and ordinary meaning. All instances of "damping ratio" used in the specification reflect it. When a "damper" is described along with a "damping ratio," the damper is not described in isolation but as part of a damped system with a damping ratio that varies because of the damper. *E.g.*, '782 patent at 3:1–53 (discussing "variable damping ratio" in the context of a damper in a system), 4:31–61 (discussing how, "under wind loading," damper in system "has a higher damping ratio"), 4:62–5:16 (discussing how "damping ratio of the damper"

can be designed "under wind tunnel testing" to achieve a specific response time "of the PV system"). Indeed, the specification does not refer to a "damping ratio" as a property of a damper in isolation, outside any system. That would make no sense. The specification explains, for instance, that "the higher damping ratio of the damper" can be "designed under wind tunnel testing to achieve a specified response time of the [photovoltaic] system [] under high environmental loads." *Id.* at 4:62–65. Wind acts on solar panels, after all—one would not test *dampers alone* in a wind tunnel.

Further, the specification speaks of the "effective" damping ratio of the damper or of how the damper "regulate[s]" the damping ratio. *E.g.*, *id.* at 4:12–15 (explaining that restricting fluid flow "increases the effective damping ratio" of the damper), 4:20–30 (illustrating how damper "may passively regulate the damping ratio"). Such statements further demonstrate that the claim term about the damper having a first or second damping ratio refers to the damper providing the photovoltaic system with two different damping ratios depending on the conditions. *See also* Ahmadian Decl. ¶ 41.

Turning to the rest of the intrinsic evidence, this meaning is consistent with the prosecution history. The patentee explained to the Patent Office that the claimed dampers "provide" the damping ratio of the overall system. *E.g.*, Response to Office Action 10–12 (June 16, 2020) (Ex. 2). It would therefore be clear to a person of ordinary skill in the art that this claim term means just what it says—that, in the context of a damped system, the damper provides a first damping ratio under one set of conditions and a second damping ratio under a second set of conditions.

The extrinsic evidence supports what the intrinsic evidence already makes clear. Dictionary definitions of "having" include the one the patent uses. *See, e.g.*, OXFORD ENGLISH DICTIONARY (3d ed. 2015) (Ex. 11) (for instance, as relevant, "[t]o keep, hold, or maintain (with respect to a

state or action)"; "[t]o produce, bring about (a result, effect, etc.)"); WEBSTER'S THIRD NEW INT'L DICTIONARY 1039-40 (1961, rev. ed. 2002) ("WEBSTER'S THIRD") (Ex. 12) (for instance, "to stand or remain in any of several implicit physical[or] logical ... relationships to"; "exhibit, show, manifest"; "to cause to be"). A person of ordinary skill in the art would understand that the term refers to the damper providing two damping ratios to the system. Ahmadian Decl. ¶¶ 36–43; Hall Decl. ¶¶ 43–48. Indeed, referring to a damper in a damped system as having a damping ratio including one that is different under different system conditions—is common usage in the field of mechanical engineering. See Ahmadian Decl. ¶¶ 38–39; Phillips, 415 F.3d at 1312–13 (citing Home Diagnostics, Inc. v. LifeScan, Inc., 381 F.3d 1352, 1358 (Fed. Cir. 2004), for the proposition that "customary meaning" refers to the "customary meaning in [the] art field"); Home Diagnostics, 381 F.3d at 1358 (looking at "usage of the claim terms" in other documents at the time of invention). Further, an expert would understand that none of the examples in the patent refer to the "damping ratio" as a characteristic of the damper by itself outside the context of the claimed photovoltaic system. Ahmadian Decl. ¶¶ 40–41; Hall Decl. ¶¶ 45–46. This all makes sense, as in the field of solar trackers, essentially all of the damping behavior is attributed to the damper itself—as FTC's own marketing materials have made clear. See Hall Decl. ¶¶ 47–48.

# C. "a valve, configured to passively open or close the second port" (claims 1, 11, 19)

Plaintiff's Construction	Defendant's Construction
This term should not be construed under 35 U.S.C. § 112(f) because "valve" connotes sufficient structure to one of ordinary skill in the art.	This element should be construed as a meansplus-function claim term under 35 U.S.C. § 112(f).
"Valve" has a plain and ordinary meaning and does not require construction.	Function: selectively close the second port due to the piston moving at a higher speed, without instructions from a controller
This term should be accorded its plain and ordinary meaning, which is "a valve that opens or closes the second port in response to a change in pressure or flow of fluid."	Corresponding structure: valve 220, as depicted in Figures 2B and 2C and described at 3:66–4:19.
	Alternatively: a valve that selectively closes the second port due to the piston moving at a higher speed, without instructions from a controller

#### 1. Plaintiff's Proposed Construction Is the Ordinary Meaning

The claim language requires that the valve "passively open or close the second port." This language stands in contrast to a valve that opens or closes in an active manner. A valve that opens or closes in an active manner does so in response to an external signal or force. For example, a valve on a faucet is actively controlled by a person who turns the valve. Ahmadian Decl. ¶ 47. In contrast, a valve that opens or closes in a passive manner responds to a change in the pressure or flow of fluid, rather than because of an external signal or force. *Id*.

#### 2. Defendant Cannot Overcome the Presumption Against Means-Plus-Function Interpretation

Defendant proposes that this term should be construed under § 112(f) as a means-plusfunction limitation. But the claim term does not use the word "means," so § 112(f) presumptively does not apply. And the suggestion implicit in defendant's proposal—that "valve" is a nonce word like "means," and that "configured to passively open or close" is a "function"—is wrong on both counts.

A valve is a fundamental and common device that regulates the flow of fluid. Ahmadian Decl. ¶ 45. That is, a valve is a "type of device with a generally understood meaning in the mechanical arts." *See Greenberg v. Ethicon Endo-Surgery*, 91 F.3d 1580, 1583 (Fed. Cir. 1996); *Zeroclick*, 891 F.3d at 1008 (approvingly citing *Greenberg*). As noted above, a valve that controls the flow of water through a faucet is a common example of a valve. There are, of course, different kinds of valves. But that is true of countless structural terms that courts nonetheless do not construe under § 112(f), such as "detent," "clamp," "container," or the like. *Greenberg*, 91 F.3d at 1583. A patentee is free to draft claims with such terms, and "it is sufficient if the claim term is used in common parlance or by persons of skill in the pertinent art to designate structure, even if the term covers a broad class of structures and even if the term identifies the structures by their function." *Skky, Inc. v. MindGeek, s.a.r.l.*, 859 F.3d 1014, 1119 (Fed. Cir. 2017) (citation omitted).

And the other claim language—"configured to passively open or close"—is structural too, referring to passively operating valves (ones that respond to a change in pressure or flow of a fluid). *See Greenberg*, 91 F.3d at 1583 ("What is important is not simply that a 'detent' or 'detent mechanism' is defined in terms of what it does, but that the term, as the name for structure, has a reasonably well understood meaning in the art.").

Courts have unsurprisingly had no trouble according the word "valve" its ordinary meaning. See, e.g., Becton, Dickinson & Co. v. Neumodx Molecular, Inc., No. 19-1126, 2021 WL 1854650, at \*7–8 (D. Del. May 10, 2021); True Chem. Sols., LLC v. Performance Chem. Co., No. MO-18-CV-00078, slip op. at 13 (W.D. Tex. Sept. 25, 2019), Rothschild Connected Devs. Innovations, LLC v. Coca-Cola Co., No. 1:16-CV-1241, 2017 WL 5410867, at \*1 n.1 (N.D. Ga. Nov. 13, 2017), vacated on other grounds, 813 F. App'x 557 (Fed. Cir. 2020); Luv N' Care, Ltd.

v. Koninklijke Philips Elecs. N.V., No. 2:11-CV-512, 2013 WL 3471269, at \*10–12 (E.D. Tex. July 9, 2013). Indeed, courts have overwhelmingly declined to apply § 112(f) even to "valve" limitations that—unlike here—were drafted much more like a "means-plus-function" term. For example, in Baker Hughes Oilfield Operations, Inc. v. Production Tool Solutions, Inc., No. 1-17-CV-291, 2020 WL 1916691, at \*6–8 (W.D. Tex. Apr. 17, 2020), the court rejected application of § 112(f) and determined there was no need to construe term "shunt valve member slidably and sealingly received within the valve housing for movement between open and closed positions, the shunt valve member closing the shunt port while in the closed position, and while in the open position, opening the shunt port"—even though that term used a means-like word ("member") claimed to perform a specific function ("for movement"). That is common sense, as "the mere fact that ... disputed limitations incorporate functional language does not automatically convert the words into means for performing such functions." Zeroclick, 891 F.3d at 1008.

Although Plaintiff has yet to see Defendant's argument, Defendant would be hard pressed to show that "valve" is used generically in the art the way "means" or other terms are. That is, "valve" does not "operate as [a] substitute[] for 'means." *See id.* at 1008. Rather, both "valve" and a valve being "configured to passively open or close" connote well-understood structure. Ahmadian Decl. ¶ 49. To no surprise, Defendant itself uses remarkably similar terminology in its own patents. *See, e.g.*, U.S. Patent No. 11,211,896 (Ex. 3) at 8:2–6 (explaining that a particular assembly "is a passive valve, in that it transitions between the two states in responses to forces acting on" the assembly), 28:40–42 (claiming a structure containing a "passive valve ... for passively controlling the flow of fluid").

As far as extrinsic evidence goes, dictionary definitions underscore that a "valve" is a common structural term in ordinary usage. *E.g.*, WEBSTER'S THIRD, at 2531 (Ex. 4) ("any of

numerous mechanical devices by which the flow of liquid, air or other gas, or loose material in bulk may be started, stopped, or regulated by a movable part that opens, shuts, or partially obstructs one or more ports or passageways"); McGraw Hill Dictionary of Scientific & Technical Terms 2116 (5th ed. 1994) (Ex. 5) ("[a] device used to regulate the flow of fluids in piping systems and machinery"); *Greenberg*, 91 F.3d at 1583 (pointing to analogous dictionary definitions for "detent"); *TEK Global, S.R.L. v. Sealant Sys. Int'l, Inc.*, 920 F.3d 777, 786 (Fed. Cir. 2019) (pointing to analogous "dictionary definitions" and citing *Greenberg* approvingly); *see also* Ahmadian Decl. ¶ 48 (agreeing with dictionary definitions).

## 3. Defendant's Proposed Means-Plus-Function Construction Includes a Function That Is Contradicted by the Claim Language

Again, Defendant has not yet explained why § 112(f) should apply, and Plaintiff will respond when it does. But one problem with Defendant's proposed construction is clear up front: the proposed "function" that Defendant incorporates in its construction is untethered from the claim language. *See Creo Prods., Inc. v. Presstek, Inc.*, 305 F.3d 1337, 1344, 1346 (Fed. Cir. 2002) ("The function of a means-plus-function limitation … must come from the claim language itself.").

Defendant proposes as the function "selectively clos[ing] the second port due to the piston moving at a higher speed, without instructions from a controller," all of which has no foundation in the claim language itself. But "it is improper to restrict a means-plus-function limitation by adopting a function different from that explicitly recited in the claim." *Creo*, 305 F.3d at 1346. Indeed, the claim term refers to the valve being "configured to passively *open or close* the second port." Defendant's statement of the function is therefore improperly narrow because it is limited to *closing* the second port instead of *opening or closing* of the second port. *See also* Ahmadian Decl. ¶ 52. Indeed, Defendant's statement of the function is improper for the same reasons as its similarly worded alternative claim construction, as discussed below. *See* Section V.C.4 (explaining

why proposals that valve operate "without instructions from a controller" and solely "due to the piston moving at a higher speed" are improper).

Defendant will presumably point to the embodiment it has identified from Figures 2A–2C and the related description, '782 patent at 3:54–4:19, which shows a valve closing the second port. But the '782 patent expressly describes that embodiment as an example: "FIGS. 2A–2C show *one example damper* 140." *Id.* at 3:54 (emphasis added). The specification also states, "The damper 140 may have configurations other than that shown in FIGS. 2A-2C *and may passively regulate the damping ratio in other manners.*" *Id.* at 4:20–22 (emphasis added). Defendant's statement of the function should be rejected because it contradicts the specification and improperly narrows the claim. The construed function in a means-plus-function limitation must be based on the claim language, and that the interpretation of that language does not support Defendant's position.

#### 4. Defendant's Alternative Construction Is Wrong

As an alternative to its means-plus-function proposal, Defendant argues that the term should be construed as "a valve that selectively closes the second port due to the piston moving at a higher speed, without instructions from a controller." In essence, Defendant repeats its asserted statement of the function under its means-plus-function analysis, discussed above. Defendant's alternative construction departs from the plain meaning and should be rejected for the same reasons that its statement of the recited function is improper—that is, it is limited to the *closing* of the second port when the claim language refers to *opening or closing* the second port, and the specification expressly states that the invention of the '782 patent embraces embodiments beyond the example shown in Figures 2A–2C. *See also* Ahmadian Decl. ¶ 52.

Defendant's proposed construction should be rejected for two additional reasons:

*First*, Defendant urges that closing the second port is only "due to the piston moving at a higher speed." This aspect also impermissibly restricts the claim term to a particular embodiment.

But "particular embodiments appearing in the written description will not be used to limit claim language that has broader effect," and "even where a patent describes only a single embodiment, claims will not be read restrictively unless the patentee has demonstrated a clear intention to limit the claim scope using words or expressions of manifest exclusion or restriction." *Innova/Pure Water, Inc. v. Safari Water Filtration Sys., Inc.*, 381 F.3d 1111, 1117 (Fed. Cir. 2004) (citations and internal quotation marks omitted). It is proper to reject, in favor of a term's plain meaning, a proposed construction that improperly limits the term in this way. *ActiveVideo*, 694 F.3d at 1325–26 (affirming conclusion that disputed terms had "plain meanings that do not require additional construction" where suggested construction "erroneously read[] limitations into the claims").

Like its means-plus-function construction, Defendant's "alternative" proposal zeros in on a particular valve and tailors a definitional straitjacket to fit. Defendant proposes that closing the second port is only "due to the piston moving at a higher speed." But a valve's passive opening or closing is tied to a response to a change in the pressure or flow of a fluid. See Ahmadian Decl. ¶ 53. For instance, in a mechanical sense, the passive opening or closing of a valve can result from positive or negative changes in fluid pressure or changes in the magnitude or direction of flow. See id. And even if some embodiments in the specification might passively open a valve in a way that is linked to speed, that is not the plain meaning of the term (see id.)—and so such an interpretation would wander from that meaning in error absent a showing of lexicography or disclaimer. GE Lighting, 750 F.3d at 1309. The extrinsic evidence tilts against Defendant too. A passive valve opens or closes in response to a change in pressure or flow of fluid. Ahmadian Decl. ¶¶ 46–47. And a valve's characterization is not only just how it closes, but how it opens. Id. ¶¶ 50–52. Defendant's construction is too narrow and too incomplete.

Second, "without instructions from a controller" is wrong. As an initial matter, Defendant's

proposal is an "improper negative limitation." *See Omega Eng'g, Inc. v. Raytek Corp.*, 334 F.3d 1314, 1321–23 (Fed. Cir. 2003). The Federal Circuit has cautioned that a court should be especially hesitant where a proposed construction includes an unclaimed "negative limitation." *See Ethicon LLC v. Intuitive Surgical, Inc.*, 847 F. App'x 901, 907 (Fed. Cir. 2021) (citing *Omega*, 334 F.3d at 1343). The Court has explained that "[w]e have identified claim constructions that exclude a particular element as including a 'negative limitation' and held that such exclusions must find support either in 'the words of the claim' or through an 'express disclaimer or independent lexicography in the written description that would justify adding that negative limitation." *Id.* at 907–08 (citations omitted). But here, there is no "express disclaimer" and no "independent lexicography ... that would justify adding that negative limitation." *See Omega*, 334 F.3d at 1323; *Lenovo Holding Co., Inc. v. DoDots Licensing Sols. LLC*, No. 21-1247, 2021 WL 582248, at \*3 (Fed. Cir. Dec. 8, 2021); *Ethicon*, 847 F. App'x at 907–08. Defendant's negative limitation should be rejected.

At any rate, Defendant's proposal adds a limitation beyond the plain meaning of the term. It is sufficient to say that the valve operates in response to a change in pressure or flow of fluid. Defendant's explanation is unhelpful at best. For instance, some valves have controllers and some do not. *See* Ahmadian Decl. ¶ 47. But *all* passive valves "operate in response to a change in pressure or flow of fluid." Accordingly, Defendant's construction does not meaningfully distinguish passive valves from others and is less precise than the term itself. *Cf. Pall Corp. v. Hemasure Inc.*, 181 F.3d 1305, 1308 (Fed. Cir. 1999) (explaining that claim construction is meant to "define[] the claim with *greater precision* than had the patentee" (emphasis added)).

# D. "wherein the damper passively transitions from the first damping ratio to the second damping ratio" (claims 1, 19)

Plaintiff's Construction	Defendant's Construction
This term is not indefinite and should be accorded its plain and ordinary meaning, which is "wherein the damper transitions from the first damping ratio to the second damping ratio in response to a change in speed between the two coupling points."	Indefinite.

The only dispute about this term is whether it is indefinite. It is not. Defendant has the burden of proving indefiniteness by clear and convincing evidence, and so Plaintiff will respond when Defendant presents its arguments.

All the words of this claim are used consistently with their plain and ordinary meaning. This term therefore needs no construction and should be accorded that meaning. The claims state that the damper is coupled between or to the photovoltaic modules and the base, so the change in speed between those coupling points refers to the change in speed in the movement of the damper. If the Court wishes to further construe this term for the jury's benefit, Plaintiff suggests stating that the damping ratio changes in response to a change in speed in the movement of the damper. See also Hall Decl. ¶ 52 (concurring).

The specification is consistent with the term's ordinary meaning: The damper resists movement of photovoltaic modules differently under different conditions, and the amount of damping provided by the damper passively transitions from a first damping ratio to a second damping ratio in response to a change in speed between the two coupling points. The specification states that the damper "passively regulate[s] the damping ratio." *Id.* at 4:20–22. That ratio "may therefore be adjusted without active control by, *for example*, the controller." *Id.* at 3:43–45 (emphasis added). As previously noted, the damper is coupled between photovoltaic modules

(which move) and a base (which does not). The specification explains that the "damper has a first damping ratio when the collection of photovoltaic modules moves at a first rate relative to the base and a second ratio when the collection of photovoltaic modules moves at a second rate relative to the base, and the damper passively transitions from the first damping ratio to the second damping ratio." '782 patent at Abstract; *see also id.* at 3:23–45 (similar, noting that the "damping ratio of the damper ... can change passively" based on the rate of movement). The specification makes clear that the claimed damper is responsible for varying the claimed damping ratio, which this claim term clearly recites. And that is how a person of ordinary skill in the art would understand the term—based, for instance, on the prevalence of passive controls. Hall Decl. ¶¶ 49–52.

E. "the damper ... passively transitioning to a second damping ratio" (claim 11)

Plaintiff's Construction	Defendant's Construction
This term is not indefinite and should be accorded its plain and ordinary meaning, which is "the damper transitions to a second damping ratio in response to a change in speed between the two coupling points."	Indefinite.

The only dispute about this term is whether it is indefinite. It is not. The meaning of this term is plain in the context of the patent. Defendant has the burden of proving indefiniteness by clear and convincing evidence. Plaintiff will respond to Defendant's arguments when it makes them.

This claim term is nearly the same as "wherein the damper passively transitions from the first damping ratio to the second damping ratio," discussed above. For the same reasons, it should be given its plain and ordinary meaning—which, to the extent it is helpful, is that "the damper transitions to a second damping ratio in response to a change in speed between the two coupling points." *See also* Hall Decl. ¶¶ 49–51, 53.

## F. "to move a designated angular distance relative to the base in a specified amount of time under specified wind loading" (claims 10, 17)

Plaintiff's Construction	Defendant's Construction
This term is not indefinite and should be accorded its plain and ordinary meaning.	Indefinite.

The context of this term within claims 10 and 17 is that "the second damping ratio allows the collection of photovoltaic modules to move a designated angular distance relative to the base in a specified amount of time under specified wind loading."

The only dispute about this term is whether it is indefinite. It is not. Defendant has the burden of proving indefiniteness by clear and convincing evidence. Plaintiff will respond to Defendant's arguments when it makes them.

This term should be given its ordinary meaning. The specification explains that the use of its dampers allows the system to withstand unwanted motion under, for example, wind gusts. For example, in one embodiment, "the higher damping ratio can be selected under wind tunnel testing such that the actuator moves the [photovoltaic] modules [i.e., solar panels] thirty degrees relative to the base in 60 seconds while the [system] is subjected to a specified amount of wind loading above a threshold wind speed." '782 patent at 5:2–13. It adds that "[t]he higher damping ratio can be selected to allow faster or slower movements of the [photovoltaic modules], such as 10 seconds, 30 seconds, or 120 seconds." *Id.* at 5:13–16. That the system is configured to control angular velocity under certain wind conditions is not indefinite.

# G. "at least one of the photovoltaic modules, the base, or the actuator is designed to withstand an average value of moments applied to the photovoltaic system across a specified period of time" (claim 18)

Plaintiff's Construction	Defendant's Construction
This term is not indefinite and should be accorded its plain and ordinary meaning.	Indefinite.

The only dispute about this term is whether it is indefinite. It is not. Each phrase within the term has an ordinary meaning. Defendant has the burden of proving indefiniteness by clear and convincing evidence. Plaintiff will respond to Defendant's arguments when it makes them.

This term should be given its ordinary meaning. "Moment" is an introductory-level physics term meaning the product of quantity (e.g., of force) and distance—for instance, torque. And nothing about the terms' usage, either in the specification or the claims, departs from their ordinary meaning. *See, e.g.*, '782 patent at 4:51–57 (explaining, for example, that "at least one of the base [], the actuator [], and the [photovoltaic] modules [] can be designed to withstand an average value of moments applied to the [photovoltaic system] across a specified duration of time," "calculated based on wind tunnel testing" to reflect "target environmental loads"). That the claimed system can withstand particular moments (e.g., from wind bursts) over time is not indefinite.

#### VI. CONCLUSION

Plaintiff respectfully requests that the Court adopt its proposed constructions.

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